Space Weather Forecast

Issued on Monday 25 November 2024 at 01:14 Local

This forecast provides a four-day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

---

Space Weather Forecast Headline: Moderate Solar Activity likely, slight chance of Strong flares.

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Moderate with a single low level Moderate flare, peaking at 24/2022 UTC from an as yet unnumbered region just beyond the northeast limb. There are currently nine sunspot regions on the visible disc. The largest regions, both in the southeast quadrant rotated into clearer view with growth and emergence of small spots observed, mainly within their intermediate regions. The more southerly located spot appeared to develop a more complex magnetic configuration, supportive of larger flare potential. The remaining spots on the disc are smaller and less magnetically complex, with little change in overall appearance.

No Earth-directed CMEs (Coronal Mass Ejections) were observed.

Solar Wind / Geomagnetic Activity: Solar winds were were between Background and Slightly Elevated levels, due to minor influence from a coronal hole in the southwest disc. Wind speeds generally varied between 400-450km/s, but with a peak of 472km/s observed at 22/2156 UTC. The Interplanetary Magnetic Field, Bt, was Weak to Moderate, with the north-south component varying weakly, but with a more persistent southward directed component observed between 24/2000-2400 UTC. Geomagnetic activity was mainly Quiet (Kp1-2), but increased to become Active (Kp4) between 24/2100-2400 UTC.

Energetic Particles / Solar Radiation: Solar radiation remained at Background levels.

Four-Day Space Weather Forecast Summary

Solar Activity: Solar activity is expected to be Low to Moderate, with isolated Moderate-class flares likely and a slight chance of Strong flares, primarily from the largest regions in the southeast disc, or a returning region currently located close to the northeast limb.

Solar Wind / Geomagnetic Activity: There are no Earth-directed CMEs in the forecast. Ongoing Slightly Elevated wind speeds may briefly become Elevated on Day 1 (25 Nov) period due to an enhancement from a small coronal hole in the southwest disc. However, any significant connection appears unlikely and speeds are expected to ease to Background levels in the coming days.

Issued by Met Office Space Weather Advisor, Tel: +44 (0) 370 900 0100 Email: enquiries@metoffice.gov.uk

© Crown Copyright 2024. All Rights Reserved.

Geomagnetic activity is expected to be mainly Quiet to Unsettled through the period, but with a chance of further Active (Kp4) intervals early on Day 1 (25 Nov).

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) is expected to persist at Background levels, with a slight but rising chance of enhancement during the period, mainly from the regions in the southeast.

Geomagnetic Storms

Geomagnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	**G1 to G2**	No	10	1	1	1
Strong	**G3**	No	1	1	1	1
Severe	**G4**	No	1	1	1	1
Extreme	**G5**	No	1	1	1	1

Radio Blackouts - X-Ray Flares

X-Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	**R1-R2 (M Class)**	Yes	60	60	60	60
Very Active	**R3-R5 (X Class)**	No	10	10	10	10

Solar Radiation Storms (High Energy Protons)

Radiation Storms Probability (Exceedance)	Level ($cm^{-2}sr^{-1}s^{-1}$)	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	**≥ S1**	No	5	10	10	10
Very Active	**≥ S3 ***	No	1	1	1	1
* S3 ≥ 10 MeV ≥ 1000 pfu and/or 50 MeV ≥ 10pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)						

Issued by Met Office Space Weather Advisor, Tel: +44 (0) 370 900 0100 Email: enquiries@metoffice.gov.uk

© Crown Copyright 2024. All Rights Reserved.